

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
7 April 2005 (07.04.2005)

PCT

(10) International Publication Number  
**WO 2005/031940 A1**

(51) International Patent Classification<sup>7</sup>: **H02J 3/22, 3/18**

(21) International Application Number:  
PCT/SE2004/001316

(22) International Filing Date:  
13 September 2004 (13.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0302574-9 26 September 2003 (26.09.2003) SE

(71) Applicant (for all designated States except US): **ABB RE-  
SEARCH LTD [CH/CH]**; Affolternstrasse 52, CH-8050  
Zürich (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LINDAHL, Sture**  
[SE/SE]; Gäslingavägen 5 B, S-227 35 Lund (SE). **JO-  
HANSSON, Kenneth** [SE/SE]; Bangatan 23 B, S-722  
28 Västerås (SE). **FROMM, Udo** [DE/DE]; St.-Caje-  
tan-Str. 28, 81669 München (DE). **JOHANSSON, Stefan**  
[SE/SE]; Ankargatan 8, S-723 48 Västerås (SE).

(74) Agent: **ABB AB**; Legal & Compliance, Intellectual Prop-  
erty, Forskargränd 8, S-721 78 Västerås (SE).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AI, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

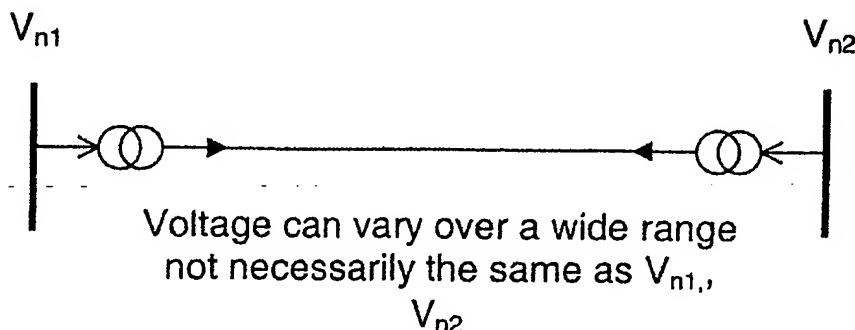
(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- with amended claims

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: **SYSTEM FOR TRANSMISSION OF ELECTRIC POWER**



(57) Abstract: The invention concerns a high voltage AC transmission cable system for transmitting power between two points, each connected to one or more power networks, and a method to operate the system. At least one transformer is arranged at each end of the AC transmission cable, wherein at least one said transformer is arranged to operate the transformer at a voltage whereby losses due to reactive power transport and dielectric losses are minimized. The AC cable is run at a variable voltage regulated such that the voltage is a function of the load for the transmission cable. This operating voltage is not necessarily the same as the nominal voltages in the connection points. In other aspects of the invention a control and communication system and a graphical user interface for carrying out the method is described.

WO 2005/031940 A1

BEST AVAILABLE COPY